ION CYCLOTRON POWER CONVERTER AND RADIO AND MICROWAVE GENERATOR

ABSTRACT

A power source, power converter, and a radio and microwave generator are provided. The power source comprises a cell for the catalysis of atomic hydrogen to release power and to form novel hydrogen species and compositions of matter comprising new forms of hydrogen. The compounds comprise at least one neutral, positive, or negative hydrogen species having a binding energy greater than its corresponding ordinary hydrogen species, or greater than any hydrogen species for which the corresponding ordinary hydrogen species is unstable or is not observed. The energy released by the catalysis of hydrogen produces a plasma in the cell such as a plasma of the catalyst and hydrogen. The power converter and radio and microwave generator comprises a source of magnetic field which is applied to the cell. The electrons and ions of the plasma orbit in a circular path in a plane transverse to the applied magnetic field for sufficient field strength at an ion cyclotron frequency ω_c that is independent of the velocity of the ion. The ions emit electromagnetic radiation with a maximum intensity at the cyclotron frequency. The power in the cell is converted to coherent electromagnetic radiation. A preferred generator of coherent microwaves is a gyrotron. The electromagnetic radiation such as microwaves emitted from the ions is received by at least one resonant receiving antenna of the power converter and delivered to an electrical load such as a resistive load or radiated as a source of radio or microwaves. The radio or microwave signal may be modulated during broadcasting by controlling the plasma intensity as a function of time or by controlling the signal electronically.